THE CONSERVATION STATUS OF AUSTRALIAN FRESHWATER CRAYFISH

In a recent review of the conservation status of Australian freshwater crustaceans (Horwitz 1990), relevant issues dealing with the freshwater crayfish fauna of Australia were included; this paper summarises that information.

Twenty five species have been included in a provisional list of threatened crayfish species and these include: i) three species of smooth freshwater crayfish belonging to the genus *Cherax*; indications are that the impact of aquaculture and commercial and recreational fishing has resulted, or may result, in declines in the population numbers, genetic variability or distributional ranges for these species. ii) thirteen species of spiny crayfish: ten of these belong to the genus *Euastacus* and are confined to highland rainforested regions along the eastern seaboard of Australia where their habitat is continually threatened by agricultural and forestry activity and where only a few of the species are adequately reserved. Three very large species belonging to the genera *Euastacus* and *Astacopsis* are subjected to pressure resulting from effectively unrestrained recreational fishing and habitat alteration; and iii) nine species of burrowing crayfish belonging to the genus *Engaeus*; this genus can be characterised by a few species with broad distributions and many species with very restricted distributions. The listed species are potentially threatened by agricultural activity and again not all are adequately reserved.

Taxonomic problems have prevented proper assessments being made for species in at least four genera (*Tenuibranchiurus*, *Geocherax*, *Parastacoides* and *Engaewa*), even though populations for each of these are known to be threatened or have become extinct already.

Three major habitat types are important because they harbor distinctive freshwater crustaceans and because they are threatened in Australia. These habitats which either include crayfish in their faunal assemblages or require crayfish to create the microhabitat conditions necessary for other crustaceans, include: i) caves and mound springs, which are subjected to pressures resulting from habitat alteration (eutrophication, trampling by cattle, off-road vehicles etc.) and the effects of water drawdown; ii) highland rainforested areas in eastern Australia; and iii) other subterranean habitats, created by crayfish, including their burrows in permanent water, in seasonally inundated areas, or even on hill-slopes. Crayfish burrows harbour a distinctive faunal assemblage (termed 'pholeteros'); pollution and the alteration of water table levels are the most likely areas which might affect both the crayfish which create the habitat, and the assemblage itself.

The above issues would be at least partially resolved by improving the reservation status of identified species and habitats. Furthermore, as we increase our knowledge base we will need to modify the status given to species and habitats. The most urgent information required to update these findings must be the precise effects on species of a wide range of potentially threatening processes (effects of pesticides, heavy metals, sedimentation, swamp drainage, changes in nutrient concentrations, introduction of exotic diseases etc.). With this data, status could be reviewed on a regular basis to remove any impeding effect that outdated listings might have on appropriate developments.

Literature Cited

Horwitz, P. 1990. The conservation status of Australian freshwater Crustacea. Australian National Parks and Wildlife Service Report Series 14. (Canberra: Australia). 121 p.

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